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REMARKS

In the Office Action, the Examiner rejected Claims 21-26, which are all of the pending claims, under 35 U.S.C. 102 as being fully anticipated by U.S. Patent 6,178,529 (Short, et al.). Claims 21, 22, 25 and 26 were also rejected under 35 U.S.C. 112 as being indefinite.

Applicants herein ask that Claims 21, 22, 25 and 26 be amended to improve the form of the claims, and to address the rejection of the claims under 35 U.S.C. 112. The rejection of the claims under 35 U.S.C. 102 is respectfully traversed.

For the reasons discussed below, Claims 21-26 are clear and definite and also patentably distinguish over the prior art. The Examiner is thus asked to enter this Amendment, to reconsider and to withdraw the rejection of Claims 21, 22, 25 and 26 under 35 U.S.C. 112 and the rejection of Claims 21-26 under 35 U.S.C. 102, and to allow Claims 21-26.

Applicants' attorney has carefully reviewed the independent Claims 21, 25 and 26, and Applicants ask that these claims be re-phrased, as presented herewith, to address the Examiner's objections to the claim language. In particular, the preambles of the claims are being re-phrased to indicate that the claims are directed to managing a cluster of networked resources. Also, the pronouns "them" and "their" are being taken out of the claims and are being replaced with the nouns they refer to.

The reference to "static or occasionally changing" is being removed from the claims, so that the claims now refer to a "changing rules and objectives group" and a "dynamically changing cluster events and policies group." In addition, Claims 21, 25 and 26 are being presented in a subparagraph format.

Also, in Claim 22, the term "reliable" is being taken out, and in the last subparagraph of the claim. "leader resource" is being changed to "central resource." An antecedent basis for the latter term is provided earlier in Claim 22, which describes "messaging for selected communications between a central resource and all other resources."

It is believed that the foregoing is fully responsive to the Examiner's rejection of Claims 21, 22, 25 and 26 under 35 U.S.C. 112, and the Examiner is thus asked to enter this Amendment, to reconsider and to withdraw the rejection of Claims 21, 22, 25 and 26 under 35 U.S.C. 112.

Moreover, Claims 21-26 patentably distinguish over the prior art and are allowable because the prior art does not disclose or suggest separating the network resources, resource groups, and cluster configurations into a first, static group, and a second, dynamically changing group, as described in independent Claims 21, 25 and 26.

To elaborate, the instant invention relates to managing a cluster of networked resources using rule-based constraints in a scalable clustering environment.. As discussed in the present application, previous systems of this general type require a large amount of human intervention. Because of this, these previous systems are expensive, prone to error, and are non-scalable beyond a certain size. One important reason for this is that these conventional approaches use a static resource-centric view, in which the physical resources in a cluster of resources are considered to be static entities that are either available or not available and are managed using predetermined strategies.

The present invention takes a different approach. With this invention, resources are considered as services whose availability and quality of service depend on the availability and the quality of service provided by one or more other services in the cluster. For this reason, two dimensions or groups can represent the cluster and its resources.

The first group captures the static or occasionally changing resources, such as the type and quality of the supporting services needed to enable its services. The second group is the dynamic state of the various services provided by the cluster. These dynamic changes are captured by events. The present invention, by separating the dynamic part (the events) from other parts (the rules), and combining these in a systematic manner only when needed, achieves a desired level of automation in the coordination and mapping of resources and services.

Short, et al, the only reference relied on by the Examiner to reject the claims, describes a method and system to facilitate the control and monitoring of disparate resources. With the method and system described in Short, et al, a resource component is connected to a resource object for management of that object, and a resource monitor connects the resource components to a cluster service. The resource component includes a plurality of methods, and these methods are called by the resource monitor to control and monitor operation of the resource object through the resource component.

In the Office Action, the Examiner cited column 5, line 46 – column 6, line 9 of Short, et al. as disclosing separating the network resources, resource groups, cluster configurations into static and dynamically changing groups. This portion of Short, et al. discusses the operation of the resource manager 86 and how that manager makes management decisions and initiates appropriate actions, such as startup, restart and failover. Various factors may be taken into account when making these decisions, but there is no disclosure or teaching of separating the resources and resource groups into the two above-identified groups that are used in the practice of the present invention. Instead, the resource manager receives resource and system state information from a resource monitor and a node manager, and uses that information to make decisions.

Independent Claims 21, 25 and 26 describe this aspect of the present invention. In particular, each of these claims describe the feature of separating the networked resources, resource groups, and cluster configurations into a first, static group, and a second, dynamically changing group.

This feature of the present invention is important because it helps to provide a high level of automation in the process of computing a globally optimal solution based on the constraints and the current state of the cluster.


The other references of record have been reviewed, and these other references, whether considered individually or in combination, also do not disclose or suggest these features of the present invention.

Because of the above-discussed differences between Claims 21, 25 and 26 and the prior art, and because of the advantages associated with these differences, these claims are not anticipated by, and are not obvious in view of, the prior art. Accordingly, Claims 21, 25 and 26 patentably distinguish over the prior art and are allowable. Claims 22-24 are dependent from, and are allowable with, Claim 21.

The changes requested herein to Claims 21, 22, 25 and 26 are being made in response to the Examiner's comment that the claims need to be more concise and clear. It is thus believed that entry of this Amendment is within the discretion of the Examiner, and such entry is respectfully requested.

In light of the above-discussion, the Examiner is asked to enter this Amendment, to reconsider and to withdraw the rejection of Claims 21, 22, 25 and 26 under 35 U.S.C. 112 and the rejection of Claims 21-26 under 35 U.S.C. 102, and to allow Claims 21-26. If the Examiner believes that a telephone conference with Applicants' Attorneys would be advantageous to the disposition of this case, the Examiner is asked to telephone the undersigned.

Respectfully Submitted,


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